

Remarks/Arguments:

Introduction

Claims 1, 3-20, 23, 24, and 43-50 are pending. Claims 6, 9-19, and 23 are withdrawn. Claims 1 and 3 have been amended.

No new matter is introduced with these amendments. Entry of the amendments is respectfully requested.

Claim Objections

Claims 1 and 3 were objected to as having minor informalities. The claims have been amended as suggested by the Examiner. Reconsideration and withdrawal of the claim objections are respectfully requested.

Section 112 Rejections

Claims 1, 3-5, 7, 8, 20, 24 and 43-50 are rejected under 35 U.S.C. §112, first paragraph. Applicants respectfully traverse.

Applicant respectfully submits that the amendments presented herein obviate the concerns raised by the Examiner. Reconsideration and withdrawal of the Section 112 rejections are respectfully requested.

Summary of the Claimed Invention

Figure 2 of the subject application shows, *inter alia*, the following:

A mounting 57 consisting of leadframe package connectors 54 and base support 52 suitable for mounting a single semiconductor die 51.

A base support 52 having an internal surface on which the semiconductor die 51 is mounted and an opposite exposed heat conducting surface on the

underside. The exposed heat conducting surface of the base support 52 is used to electrically, thermally and mechanically couple to the printed circuit board (not shown) and in addition to and distinct from the leadframe package connectors 54.

Leadframe package connectors 54, base support 52 and second portion 60 have at the periphery a stepped edge used to "providing additional locking strength" of the leadframe within the sealing material 55. (See, Specification, Page 18, line 28-29).

Sealing material which, after sealing the only areas of the base support 52 and cover 60 and lower and outer edges of the package pins 54 remain exposed allowing connection to the printed circuit board (not shown). (See, Specification, Page 20, lines 5 to 8).

The embodiment of Figure 2 partially exposes a peripheral electrical connectors and base support and second portion heat radiating surface whilst completely enclosing the connecting portion in sealing material. The applied references, i.e., Sakanobu, Kazuo and Kierse, show only the exposure of package leads on the underside of the leadframe. There is no equivalent to the exposed underside of the Base Support on which the semiconductor die is internally mounted. This is important because the exposed underside of the base support act as a heat conductor directly to the printed circuit board.

Further, Sakanobu does not show how the described component is mounted to the printed circuit board. Method of attachment is either (i) with pins vertically set within drilled holes of the board, with the hole in the shield being on a vertical wall or (ii) the component placed with pins horizontally (as drawn) with the hole in the shield being on a top face.(ii) has been the assumption to date.

Section 102 Rejections

Claims 1, 3-5, 8, 20 and 47-50 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by JP 07-288332 to Sakanobu et al. (hereinafter "Sakanobu"). Applicant respectfully traverses.

For the convenience of the Examiner, a full translation of Sakanobu is enclosed following the last page of the remarks.

With respect to claim 1, the Examiner states that Sakanobu discloses "a semiconductor assembly having at least part of a printed circuit board facing surface of the first portion and/or heat radiating surface of the second portion are left exposed".

It is not clear how the package of Sakanobu would be mounted to the printed circuit board. Method of attachment in Sakanobu is either (i) with pins vertically set within drilled holes of the board, with the hole in the shield being on a vertical wall or (ii) the component placed with pins horizontally (as drawn) with the hole in the shield being on a top face.

Amended Claim 1 makes the distinction that differentiates application from Sakanobu in that where the leadframe is formed prior to molding there (Figure 7 page 8). No part of the shield is left exposed (Figure 8-2 Page 8 and Figure 9 Page 8).

Moreover, Sakanobu fails to disclose an embodiment structure where the first or second portions of the shield might be formed prior to molding and is left after molding at least partially exposed.

With respect to claim 3, the Examiner states "...the first portion of the mounting comprises a formation of electrical connectors (21-1 to 21-4)..." See Figure 1 Page 6 Figure 7-2 Page 8 (6b) each of which has a printed circuit board facing surface which is not covered by the sealing material.

Claim 3 has been amended to make the distinction between the “printed circuit board facing surface” of first portion base support (where the semiconductor assembly is mounted) and the first portion “printed circuit board facing surface” of the peripheral electrical connectors (e.g. 21-1 to 21-4).

Applicant respectfully disagrees that first portion under the semiconductor assembly is completely encapsulated by the sealing material in Sakanobu.

Thus, it is respectfully submitted that the claims of the present invention are patentably distinct over Sakanobu. Reconsideration and withdrawal of the Section 102 rejections are respectfully requested.

Claims 1, 3-5, 7-8, 20, 24, 43 and 47-50 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by JP 05-166988 to Kazuo et al. (hereinafter “Kazuo”). Applicant respectfully traverses.

For the convenience of the Examiner machine translation of Kazuo is provided.

With respect to claim 1, the Examiner states that Kazuo discloses “a semiconductor assembly having at least part of a printed circuit board facing surface of the first portion and/or heat radiating surface of the second portion are left exposed”.

Amended Claim 1 makes the distinction that differentiates the present invention from Kazuo in that where the no part of the first portion form mounting the semiconductor assembly is left exposed. Further, Kazuo fails to disclose any embodiment or structure where the first or second portions of the shield might be formed prior to molding and is left after molding at least partially exposed. Thus, Applicant respectfully disagrees that first portion and second portions of Kazuo are left exposed

With respect to claim 3, the Examiner states "...the first portion of the mounting comprises a formation of electrical connectors (6b)..." (See Figure 5 and Figure 14 (6b) Page 12 and Figures 10 to Figure 19 on Page 14). "...each of which has a printed circuit board facing surface which is not covered by the sealing material.

Amended Claim 3 makes the distinction between the "printed circuit board facing surface" of the first portion (where the semiconductor assembly is mounted) and the first portion "printed circuit board facing surface" of the peripheral electrical connectors.

Applicant respectfully disagrees that first portion under the semiconductor assembly is completely encapsulated by the sealing material.

Thus, it is respectfully submitted that the claims of the present invention are patentably distinct over Kazuo. Reconsideration and withdrawal of the Section 102 rejections are respectfully requested.

Section 103 Rejections

Claims 7 and 43 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Sakanobu in view of US 5,541,446 to Kierse (hereinafter "Kierse"). Applicants respectfully traverse.

Kierse is cited by the examiner for its use of copper. Kierse, however, fails to cure the deficiencies of Sakanobu. Thus, reconsideration and withdrawal of the Section 103(a) rejections of claims 7 and 43 over Sakanobu and Sakanobu are respectfully requested.

Claim 24 is rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Sakanobu. Applicants respectfully traverse.

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It is respectfully submitted that Sakanobu fails to disclose, teach or suggest the present invention as presently defined in claim 1. Accordingly, dependent claim 24 is patentably distinct over Sakanobu.

Summary

Therefore, Applicants respectfully submit that independent claim 1, and all claims dependent therefrom, are patentably distinct. Rejoinder of withdrawn claims 6, 9-19, and 23 is also respectfully requested. This application is believed to be in condition for allowance. Favorable action thereon is therefore respectfully solicited.

Should the Examiner have any questions or comments concerning the above, the Examiner is respectfully invited to contact the undersigned attorney at the telephone number given below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication, or credit any overpayment, to Deposit Account No. 08-2461. Such authorization includes authorization to charge fees for extensions of time, if any, under 37 C.F.R. § 1.17 and also should be treated as a constructive petition for an extension of time in this reply or any future reply pursuant to 37 C.F.R. § 1.136.

Respectfully submitted,

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